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We miss a chapter giving directions to the beginner in the difficult art of dissection. A figure to accompany the explanation of the parts of the skeleton of a rat in order to illustrate the vertebrate skeleton, would also add to the value of the manual.

The classification is mostly taken from the anatomical system of the Germans. In a lineal arrangement, such as the author is obliged to adopt in a book, the Mollusca follow the Vertebrata, then succeed the third sub-kingdom, Arthropoda; the fourth, Vermes; the fifth, Echinodermata; the sixth, Cœlenterata; and the seventh and last, Protozoa.

In looking over the chapter on Arthropoda (Insects and Crustacea) we find some things to criticise. The Cladocera are spoken of on p. cv. as a "family." By some naturalists of high standing, such as Claus and others, this group is considered as a suborder. On p. cix. where certain larvæ of insects are mentioned as having the digestive canal "aproctous," we might add that the larva of Stylops has the intestine ending in a blind sac. On p. 112 it is stated that the "telson, or terminal so-called segment of the crustacea does not appear to possess the characteristics of a true segment." In Limulus, the ninth segment of the abdomen, well marked in the embryo, forms the caudal spine, or telson. It is a small thing to criticise, but throughout the work all the specific names, with very rare exceptions, begin with a capital; thus marring the typography of the book.

Bee Culture.* — Mr. Adair has succeeded in collecting for his annual a number of articles by our leading apiarians comprising much valuable information, both to bee keepers and to students of animal psychology. A proof of this is seen in the first article by Vogel (which we reprinted on p. 17), which contains so much bearing on the theory of evolution, and the principles of breeding.

No art has profited more from the most abstruse researches of purely scientific men, than the art of bee keeping. Huber's hive, the prototype of all our modern hives, was constructed by that philosopher, solely that he might the better watch the habits of bees to gratify his wonderful desire for knowledge for its own *sake*. The discovery of Parthenogenesis by Siebold and Berlepsch was a purely scientific one, but of the greatest value in the art of raising bees. Vogel's article shows how much the future of bee keeping depends on the application of physiological knowledge, obtained by the most difficult and abstruse experiments. So much is said by "practical" men of the futility of studying bugs, or cutting up dead or dried plants, or the cruelties of vivisection, or of "scientific toys," such as the microscope or spectroscope, that a reminder of what the world owes to the scientific recluse, is naturally suggested.

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* Annals of Bee Culture for 1870. A Bee Keepers' Year Book. D. L. Adair, editor. Louisville, Ky., 1870. 8vo. pp. 64. 50 cents.

In some remarks on "Apicultural Progress" Mr. Elisha Gallup, contrasting the abundant bee literature of the present year with the dearth of bee books in 1846, says "we now have three monthly journals: the American Bee Journal, the Illustrated Bee Journal, the Bee Keepers' Journal, the Annals of Bee Culture [under review]; while there is "scarcely an agricultural paper of any note in the land, that has not its bee department, and all are edited with truthfulness and ability." Mr. Charles Dadant in a "Glance at European Bee Culture," after reviewing its progress in France, Italy and Switzerland, says: "As for Germany, it would take a book to record all the improvements, inventions and discoveries made in that country in the last fifteen years; suffice it to say, that in 1868, there appeared four hundred and twelve publications on bee culture in Germany. This would show that Germany is now the most advanced country in Europe in theoretical bee culture; but in practical bee culture, it is safe to say that Young America is ahead of all."

Regarding the enemies of the bee, other than insects, Professor A. J. Cook says: —

> "Insectivorous birds also — chief of which in this case is the King-bird (*Tyrannus Carolinensis*) — are ever on the alert to take the home-returning bees. Nor do they capture only drones, for we have seen their stomachs full to repletion of the little workers. We ought not to kill these birds, for from their insectivorous habits, they are of invaluable aid to the farmer. If the apiary is in a grove, as it should be if possible, these bee-martins will be seen, on a tree or bush, to sit and perch, and do something else; for who has not seen them dart for the passing insect, with unerring aim? and certainly the bees coming home to a hive high from the ground would be more apt to become the victims of these rapacious gourmands.
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> "But some of our readers have been thinking of, and fearing toads ever since commencing to read this article. Now, as we claim a firm friendship for the toad, loving to watch him in our room and

garden, as he throws out his slender tongue with lightning quickness, taking in the thieving insects which rob us of our delicious fruits, we love to speak a word in his defence. From our observations, we deduce the following: Toads usually seize those bees which fall to the ground; so it is the freighted honey-gatherer, which aims amiss for the alighting board, and thus falls to the ground, that is entombed in the stomach of his Toadship. So from what we have already said, we believe, despite the opinion of some of our best apiculturists, that it is the bees in hives high from the ground which suffer from his Batrachian majesty."

On the subject of breeding in-and-in, Mr. E. Gallup tells us that in "three cases he has known bees to be bred in-and-in without any cross from other stocks, until they became mere dwarfs, and entirely ceased to swarm, or be of any profit to their owner."

At the meeting of the German bee keepers at Nuremburg, Dr. Pollman exhibited a collection of bees illustrative of their natural history. "It was composed of two boxes, containing workers, queens, and drones of the different kinds of bees, such as black, Italian, Greek, Egyptian, etc., and of different parts of the bodies of bees, hermaphrodites, insects hostile to bees, scales of wax of all sizes, broods, foul broods, combs, &c."

NATURAL HISTORY MISCELLANY.

BOTANY.

Climbing Fern.—The beautiful Climbing Fern (*Lygodium palmatum*) exists and flourishes in its wild state within the borders of "old Essex." The writer discovered this rare and attractive plant in 1869, while exploring "Lynn Woods" in the vicinity of the famous "Penny Bridge." The locality of its haunt is within the limits of Saugus, and not far from that romantic spot known as the Pirates' Glen. Specimens have been obtained having a stalk or "vine" nearly four feet in length. As the climbing fern is one of the most rare, graceful and attractive plants found in this country, it is a matter of satisfaction to know that we have it growing in our woodland valleys. This fern has been found, though rarely, in Florida, Kentucky and Massachusetts. In Virginia it is often seen, and it has been found in several localities